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Peale (A. C.)

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
J. W. POWELL, DIRECTOR

MINERAL WATERS

BY

A. C. PEALE

Presented by the author

ABSTRACT FROM "MINERAL RESOURCES OF THE UNITED STATES
CALENDAR YEARS 1889 AND 1890"—DAVID T. DAY, CHIEF OF
THE DIVISION OF MINING STATISTICS AND TECHNOLOGY



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The production of mineral waters for 1889 from 258 springs was 12,780,471 gallons, valued at \$1,748,458. This was an increase of 3,201,823 gallons, and the increase in the value of the product was \$69,156.

For 1890 the total number of springs was increased to 273, and of this number 220 springs have reported their sales, which amounted to 12,215,187 gallons, valued at \$2,493,948. If for the 53 springs delinquent at the time of making up this report we estimate the product and value at the same as given for 1889, we would have a total production of 15,691,650 gallons, with a valuation of \$2,839,223.

In the tables, however, the delinquent springs have been estimated at a little less than one-half the figures of 1889, giving for the totals the following figures: 13,907,418 gallons, with a value of \$2,600,750. This is an increase from 1889 of 1,126,677 gallons and an increase in value of \$852,292.

The total number of springs in the North Atlantic States reporting sales in 1889 was 60, which was 18 more than reported the previous year, and was only 4 less than the total on the list for that year. In 1890 the number reporting is 43 out of a total of 66. The 60 springs reporting in 1889 reported an increase of 1,249,665 gallons, with an increase in value of \$224,467 over the total for 1888.

In 1890 there is an increase of 936,610 in the number of gallons reported, and if the sales of the 14 nonreporting springs were included it would doubtless be greater. There is, also, an increase of \$703,937 in the total value of the water sold.

In the South Atlantic division the total number of springs increased from 41 in 1888 to 47 for 1889, and for 1890 has increased to 51, six new springs having been added and two taken from the list of 1889. There are 12 springs from which no reports have been received, but the 39 reporting give an increase in value over the sales of the 47 reporting in 1889.

The Northern Central States, from a total of 45 in 1888, increased to 86 in 1889, with an increase in production of over 4,000,000 gallons. In 1890 the list contains a total of 84, of which only 71 report, and the total production reported is slightly less than for the previous year. However, there is a considerable increase in the value of the pro-

duction of the springs reporting as compared with the previous year. Seven springs were added to the list of 1889 and nine taken from it.

In the Southern Central States one more spring for 1889 is added to the number on the list as published in 1888, making the total 33. There is also a slight increase in production, but a falling off in its value. For 1890 three springs were added, bringing the total up to 36. Of these, however, only 30 have reported, and of course the figures are not as much greater than those of the previous year, as would have been the case had all reported.

The Western States and Territories in 1889 show a large increase in the number of spring waters used commercially, as compared with 1888, the number being 32 instead of 16. Notwithstanding this there was a decrease of over 400,000 gallons in the production as reported. One new spring is added to and one taken from the list for 1890, leaving the total 32. Of these 25 have reported, and they report an increase over the figures for 1889.

Production of mineral waters by States and Territories.

States and Territories.	1889.			1890.		
	Number of springs reporting.	Product.	Value of product.	Number of springs reporting.	Product.	Value of product.
		<i>Gallons.</i>			<i>Gallons.</i>	
Alabama.....	5	24, 380	\$2, 430	3	12, 500	\$11, 130
Arkansas.....	3	110, 200	10, 020	5	97, 609	22, 211
California.....	14	808, 625	252, 241	12	258, 722	89, 786
Colorado.....	8	304, 600	87, 400	7	445, 435	92, 125
Connecticut.....	3	4, 410	2, 630	2	4, 700	1, 950
Georgia.....	3	31, 120	9, 412	4	66, 000	18, 450
Illinois.....	10	2, 207, 216	38, 697	7	61, 900	12, 470
Indiana.....	8	125, 162	9, 525	8	67, 823	7, 487
Iowa.....	5	12, 780	2, 490	5	55, 440	8, 330
Kansas.....	9	245, 033	15, 394	7	251, 792	15, 114
Kentucky.....	5	121, 350	14, 378	5	86, 500	10, 025
Maine.....	8	888, 600	79, 060	7	406, 367	67, 590
Maryland.....	4	74, 160	12, 057	2	1, 550	162
Massachusetts.....	8	1, 011, 173	63, 622	8	967, 465	60, 992
Michigan.....	7	333, 345	67, 987	6	453, 000	98, 700
Mississippi.....	2	8, 870	1, 174	2	24, 762	5, 020
Missouri.....	14	289, 720	23, 270	7	45, 100	5, 260
Nebraska.....						
New Hampshire.....	2	60, 000	4, 500	3	930, 000	340, 500
New Mexico.....	4	32, 700	10, 225	3	17, 365	5, 357
New York.....	21	1, 795, 543	239, 875	19	2, 315, 472	631, 254
North Carolina.....	11	70, 644	19, 431	6	86, 009	47, 457
Ohio.....	11	251, 610	26, 696	8	82, 290	13, 246
Oregon.....	2	4, 800	1, 680	0		
Pennsylvania.....	12	275, 700	65, 163	10	309, 420	64, 676
Rhode Island.....	2	47, 000	2, 975	2	77, 000	2, 975
South Carolina.....	2	50, 620	10, 046	0		
Tennessee.....	4	21, 500	5, 000	2	85, 000	17, 000
Texas.....	14	213, 700	10, 354	13	298, 200	16, 040
Vermont.....	3	16, 150	11, 975	4	32, 650	5, 575
Virginia.....	22	397, 395	141, 476	20	421, 466	158, 016
Washington.....	3	113, 748	14, 943	2	23, 248	3, 943
West Virginia.....	4	21, 900	5, 360	6	28, 000	6, 850
Wisconsin.....	20	2, 292, 910	409, 179	20	2, 623, 068	489, 399
Other States (a).....	5	513, 907	77, 793	5	1, 569, 734	162, 283
Total.....	258	12, 780, 471	1, 748, 458	220	12, 215, 187	2, 493, 948

a For 1889 the States of Florida, Idaho, Minnesota, New Jersey, and South Dakota are included; for 1890 the States of Florida, Idaho, Minnesota, Nebraska, and South Dakota are included, only one spring reporting in each of these States.

Imports.—Prior to 1884 the Treasury Department did not distinguish natural mineral waters from those that were artificial; since 1883 the

distinction has been made, but the artificial waters have not been classified according to the receptacles in which they have been imported. The importation is shown in the two tables following, with a table of exports appended.

In 1889 there was an increase in the imports of artificial waters, but a decrease in the amount of natural mineral waters brought into the country, although the value was slightly above that of 1888.

In 1890 the importation of natural mineral waters was very greatly increased over that of 1889, while the importation of the artificial waters decreased.

The amount of natural and artificial mineral waters exported is trifling.

Mineral waters imported and entered for consumption in the United States, 1867 to 1893, inclusive.

Fiscal years ending June 30—	In bottles of 1 quart or less.		In bottles in excess of 1 quart.		Not in bottles.		All, not artificial.		Total value.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	<i>Bottles.</i>		<i>Quarts.</i>		<i>Gallons.</i>		<i>Gallons.</i>		
1867	370,610	\$24,913	3,792	\$360		\$137			\$25,410
1868	241,702	18,438	22,819	2,052	554	104			20,594
1869	344,691	25,635	9,739	802	1,042	245			26,682
1870	433,212	30,680	18,025	1,743	2,063	508			32,931
1871	470,947	34,604	2,320	174	1,336	141			34,919
1872	892,913	67,951			639	116			68,067
1873	35,508	2,326			355	75	394,423	\$98,151	100,552
1874	7,238	691			95	16	199,035	79,789	80,496
1875	4,174	471			5	2	395,956	101,640	102,113
1876	25,758	1,899					447,646	134,889	136,788
1877	12,965	1,328				22	520,751	167,458	168,808
1878	8,229	815					883,674	350,912	351,727
1879	28,440	2,352			3	4	798,107	282,153	284,509
1880	207,554	19,731					927,759	285,798	305,529
1881	150,326	11,850				26	1,225,462	383,616	395,492
1882	152,277	17,010					1,542,905	410,105	427,115
1883	88,497	7,054					1,714,085	441,439	448,493

Imports for years 1884 to 1890.

Years ended—	Artificial mineral waters.		Natural mineral waters.	
	Gallons.	Value.	Gallons.	Value.
June 30, 1884	29,366	\$4,591	1,505,298	\$362,651
1885	7,972	2,157	1,660,072	397,875
Dec. 31, 1886	62,464	16,815	1,618,960	354,242
1887	13,885	4,851	1,915,511	385,906
1888	12,752	4,411	1,716,461	341,695
1889	36,494	8,771	1,558,968	368,601
1890	22,328	7,133	2,322,008	433,281

Exports of natural mineral waters, of domestic production, from the United States.

Fiscal years ending June 30—	Value.	Fiscal years ending June 30—	Value.
1875	\$162	1881	\$1,029
1876	80	1882	421
1879	1,529	1883	(a) 459
1880	1,486		

a None reported since 1883.

Production of natural mineral waters sold from 1883 to 1890.

Geographical division.	Springs-reporting.	Gallons sold.	Value.	Geographical division.	Springs-reporting.	Gallons sold.	Value.
1883.				1887.			
North Atlantic....	38	2,470,670	\$282,270	North Atlantic....	40	2,571,004	\$213,210
South Atlantic....	27	312,090	64,973	South Atlantic....	34	614,041	147,149
North Central....	37	1,435,809	323,600	North Central....	38	1,480,820	208,217
South Central....	21	1,441,042	139,973	South Central....	29	741,080	87,946
Western	6	169,812	52,787	Western	12	1,236,324	288,737
Estimated.....	129	5,829,423	863,603	Estimated.....	153	6,643,269	945,259
	60	1,700,000	256,000		62	1,616,340	316,204
Total.....	189	7,529,423	1,119,603	Total.....	215	8,259,609	1,261,463
1884.				1888.			
North Atlantic....	38	3,345,760	328,125	North Atlantic....	42	2,856,790	247,108
South Atlantic....	27	464,718	103,191	South Atlantic....	32	1,689,387	493,489
North Central....	37	2,070,533	420,515	North Central....	38	2,002,373	325,839
South Central....	21	1,526,817	147,112	South Central....	19	426,410	71,215
Western	6	307,500	85,200	Western	15	1,863,679	421,651
Estimated.....	129	7,715,328	1,084,143	Estimated.....	146	8,828,648	1,559,302
	60	2,500,000	375,000		52	750,000	120,000
Total.....	189	10,215,328	1,459,143	Total.....	198	9,578,648	1,679,302
1885.				1889.			
North Atlantic....	51	2,527,310	192,605	North Atlantic....	60	4,106,464	471,575
South Atlantic....	32	908,692	237,153	South Atlantic....	47	646,239	198,032
North Central....	45	2,925,288	446,211	North Central....	86	6,137,776	604,238
South Central....	31	540,436	74,100	South Central....	33	500,000	43,356
Western	10	509,675	86,776	Western	32	1,389,992	431,257
Estimated.....	169	7,411,401	1,036,845	Total.....	258	12,780,471	1,748,458
	55	1,737,000	276,000				
Total.....	224	9,148,401	1,312,845	1890.			
1886.				North Atlantic....	55	5,043,074	1,175,512
North Atlantic....	49	2,715,050	177,969	South Atlantic....	39	647,625	245,760
South Atlantic....	38	720,397	123,517	North Central....	71	5,050,413	737,672
North Central....	40	2,048,914	401,861	South Central....	30	604,571	81,426
South Central....	31	822,016	58,222	Western	25	869,504	253,578
Western	14	781,540	137,796	Estimated.....	220	12,215,187	2,493,948
Estimated.....	172	7,087,917	899,365		53	1,692,231	106,802
	53	1,862,400	384,705	Total.....	273	13,907,418	2,600,750
Total.....	225	8,950,317	1,284,070				

Alabama.—1889.—The number of springs on the list is not changed from that of 1888. The springs reporting are: Bailey Springs, Bailey Springs, Lauderdale county; Bladen Springs, Bladen Springs, Choc-taw county; Healing Springs, Healing Springs, Washington county; Jackson White Sulphur Springs, Jackson, Clarke county; Matchless Mineral Water, Greenville, Butler county.

1890.—Only three springs have reported for 1890. They are: Bailey Springs, Bailey Springs, Lauderdale county; Healing Springs, Healing Springs, Washington county; Matchless Mineral Spring, Greenville, Butler county.

Arkansas.—1889.—Only three springs report for 1889, although the list for 1888 contained the names of five. The three reporting are: Arkansas Lithia Springs, Hope, Hempstead county; Fairchild's Pot-

ash Sulphur Springs, Potash Sulphur, Garland county; Mountain Valley Springs, Mountain Valley Springs, Garland county.

1890.—Two more springs are added for 1890, bringing the list up to five, as in 1888. All of these five report. They are: Arkansas Lithia Springs, Hope, Hempstead county; Fairchild's Potash Sulphur Springs, Potash Sulphur, Garland county; Dovepark Spring, Dovepark, Hot Spring county; Eureka Springs, Eureka Springs, Carroll county; Mountain Valley Springs, Mountain Valley, Garland county.

California.—1889.—Instead of nine springs, as in 1888, California has fourteen on the list for 1889. They are the following: Azule Seltzer Springs, San José, Santa Clara county; Bartlett Springs, Bartlett Springs, Lake county; Byron Hot Springs, Byron Hot Springs, Contra Costa county; Castalian Mineral Water, Inyo county; Coronado Natural Mineral Water, Coronado, San Diego county; El Toro Spring, Marin county; Geyser Soda and Litton Seltzer Springs, Sonoma county; Hot Springs of Elsinore, City of Elsinore, San Diego county; Napa Soda Springs, Napa Soda Springs, Napa county; Ojai Hot Springs, Ventura county; Pacific Congress Springs, San José, Santa Clara county; Pacific Congress Springs, Saratoga, Santa Clara county; Paraiso Springs, Paraiso Springs, Monterey county; Tolenas Springs, Fairfield, Solano county; Witter Springs, Lake county.

1890.—One new spring is added to and one taken from the list, making a total of fourteen; of these the following twelve report for 1890: Azule Seltzer Spring, San José, Santa Clara county; Bartlett Springs, Bartlett Springs, Lake county; Castalian Mineral Water, Inyo county; Coronado Natural Mineral Water, Coronado, San Diego county; El Toro Spring, Marin county; Geyser Soda and Litton Seltzer Springs, Sonoma county; Napa Soda Springs, Napa Soda Springs, Napa county; Ojai Hot Springs, Ventura county; Paraiso Springs, Fairfield, Solano county; Tuscan Spring, Red Bluff, Tehama county; Witter Springs, Upper Lake, Lake county.

Colorado.—1889.—Colorado's two springs of 1888 increased to eight in 1889; they are the following: Boulder Springs; Clark Magnetic Spring, Pueblo, Pueblo county; Fariss Magnetic Well, Pueblo, Pueblo county; Idaho Mineral Spring, Idaho Springs, Clear Creek county; Little Ute and Iron Duke Springs, Cañon City, Fremont county; Manitou, Navajo, and Shoshone Springs, Manitou Springs, El Paso county; Seltzer Springs, Springdale, Boulder county; Ute and Little Chief Iron Springs, Manitou, El Paso county.

1890.—The number of springs on the list remains the same, and all of the eight report their sales. They are: Boulder Springs, Boulder Springs, Boulder county; Clark Magnetic Mineral Spring, Pueblo, Pueblo county; Fariss Magnetic Well, Pueblo, Pueblo county; Idaho Mineral Spring, Central City, Gilpin county; Little Ute and Iron Duke Springs, Cañon City, Fremont county; Manitou, Navajo, and Shoshone Springs, Manitou, El Paso county; Seltzer Springs, Springdale, Boul-

der county; Ute and Little Chief Iron Springs, Manitou, El Paso county.

Connecticut.—1889.—Three springs make up the list for Connecticut, as follows: Aspinock Springs, Putnam Heights, Windham county; Oxford Chalybeate Spring, Oxford, New Haven county; Stafford Mineral Spring, Stafford Springs, Tolland county.

1890.—Only two springs, viz, Aspinock Spring and Stafford Mineral Spring, report sales.

Florida.—1889.—For the first time Florida is represented on the list with one spring, viz: Cantoment Spring, near Pensacola, Escambia county, which reports also for 1890.

Georgia.—1889.—Three springs report. They are the following: Bowden Lithia and Georgia Bromine-Lithia Springs, Lithia Springs, Douglas county; Daniels' Springs, Greene county; Hughes' Springs, Floyd county.

1890.—One spring not on the list for 1889 is added, and all four report. They are: Bowden Lithia and Georgia Bromine-Lithia Springs, Lithia Springs, Douglas county; Daniels' Springs, Greene county; Hughes' Springs, Floyd county; Ponce de Leon Mineral Spring, Atlanta, Fulton county.

Idaho.—1889 and 1890.—As in the preceding years, Idaho is represented by the Idanha Springs of Soda Springs, Bingham county.

Illinois.—1889.—Ten springs report for this year, whereas only four reported in 1888. The following are the ten springs: Black Hawk Springs, Rock Island, Rock Island county; Diamond Mineral Spring, Grantfork, Madison county; Glen Flora Mineral Spring, Waukegan, Lake county; Hillsboro Mineral Spring, Hillsboro, Montgomery county; Kirkwood Mineral Spring, Kirkwood, Warren county; Peoria Magnetic Artesian Spring, Peoria, Peoria county; Perry Springs, Perry Springs, Pike county; Red Avon Mineral Spring, Fulton county; Sanicula Springs, Ottawa, La Salle county; Silver Springs, Greenup, Cumberland county.

1890.—One spring is taken from the list, and reports have been received from the following: Black Hawk Springs, Rock Island, Rock Island county; Diamond Mineral Spring, Grantfork, Madison county; Kirkwood Mineral Spring, Kirkwood, Warren county; Peoria Magnetic Artesian Spring, Peoria, Peoria county; Perry Springs, Perry Springs, Pike county; Red Avon Mineral Spring, Fulton county; Sanicula Springs, Ottawa, La Salle county.

Indiana.—1889.—Indiana's list increased from six in 1888 to eight in 1889. These are: Ash Iron Springs, De Gonia, Warwick county; Buffalo Saline Well, Millport, Washington county; Elliot's Mineral Spring, Shoals, Martin county; Kickapoo Magnetic Springs, Kickapoo, Warren county; King Mineral Springs, Muddy Fork, Clark county; Lodi Artesian Well, Lodi, Fountain county; Magnetic Mineral Spring, Terre Haute, Vigo county; West Baden Springs, West Baden, Orange county.

1890.—The number of springs on the list remains the same as for 1889, two springs being added and two taken from it. The springs reporting are: Elliot's Mineral Spring, Martin county; Kickapoo Magnetic Springs, Kickapoo, Warren county; King's Mineral Springs, Muddy Fork, Clark county; Lodi Artesian Well, Silverwood, Fountain county; Magnetic Mineral Spring, Terre Haute, Vigo county; West Baden Springs, West Baden, Orange county; French Lick Springs, French Lick, Orange county; Indiana Mineral Springs, Indiana Mineral Springs, Warren county.

Iowa.—1889.—In 1888 the list included three springs from this State; two were added for 1889, making the total number for which reports were received as follows: Black Hawk Springs, Salt Creek township, Davis county; Cherokee Magnetic Mineral Spring, Cherokee, Cherokee county; Lake View Medical Spring, Lake View, Sac county; Ottumwa Mineral Springs, Ottumwa, Wapello county; White Sulphur Springs, White Sulphur, Scott county.

1890.—One new spring is added to the list and reports were received from the following: Black Hawk Springs, Salt Creek township, Davis county; Cherokee Magnetic Mineral Spring, Cherokee, Cherokee county; Ottumwa Mineral Springs, Ottumwa, Wapello county; White Sulphur Springs, Scott county; Colfax Mineral Water, Colfax, Jasper county.

Kansas.—1889.—In 1888 Kansas had five springs reporting sales. They had increased in 1889 to nine, as follows: Blazing's Artesian Mineral Wells, Manhattan, Riley county; Boiling Springs, Mound Valley, Labette county; Genda Mineral Springs, Genda Springs, Cowley county; Great Spirit Springs, Cawker City, Mitchell county; Jewell county Lithium Springs, Montrose, Jewell county; Osage Mission Mineral Well, Osage Mission, Neosho county; Providence Mineral Wells, Providence, Butler county; Topeka Mineral Wells, Topeka, Shawnee county; Wichita Mineral Spring, Wichita, Sedgwick County.

1890.—One new spring is added to the list and two are taken from it, leaving the total eight. Seven report as follows: Blazing's Artesian Mineral Wells, Manhattan, Riley county; Genda Mineral Springs, Genda Springs, Cowley county; Great Spirit Springs, Cawker City, Mitchell county; Providence Mineral Wells, Providence, Butler county; Topeka Mineral Wells, Topeka, Shawnee county; Wichita Mineral Spring, Wichita, Sedgwick county; Iola Mineral Well, Iola, Allen county.

Kentucky.—1889.—No change so far as number of springs reporting is concerned is noted for 1888 to 1889. The following springs reported: Anita Springs, La Grange, Oldham county; Bedford Springs, Bedford, Trimble county; Blue Lick Springs, Blue Lick Springs, Nicholas county; Crab Orchard Springs, Crab Orchard, Lincoln county; St. Patrick's Well, Louisville, Jefferson county.

1890.—Kentucky's list remains the same for the previous year. The following five springs report sales: Anita Springs, La Grange, Old-

ham county; Bedford Springs, Bedford, Trimble county; Blue Lick Springs, Blue Lick Springs, Nicholas county; Crab Orchard Springs, Crab Orchard, Lincoln county; St. Patrick's Well, Louisville, Jefferson county.

Maine.—1889.—The list for this year showed an increase of one spring over those reporting for 1888. The following springs, eight in number, reported: Hartford Cold Spring, Oxford county; Cold Bowling Spring, York county; Keystone Spring, East Poland, Androscoggin county; Old Point Indian Spring, Somerset county; Poland Spring, Poland, Androscoggin county; Seal Rock Spring, Saco, York county; Underwood Springs, Falmouth Foreside, Cumberland county; Windsor Mineral Spring, Androscoggin county.

1890.—One spring on the list of 1889 reports no sales for 1890 and three springs new to the list are added, which makes the total number ten. The springs reporting are seven in number, as follows: Barker Mill Spring, Auburn, Androscoggin county; Crystal Springs, Auburn, Androscoggin county; Keystone Spring, East Poland, Androscoggin county; Poland Spring, South Poland, Androscoggin county; Underwood Springs, Falmouth Foreside, Cumberland county; Wilson Spring, North Raymond, Cumberland county; Windsor Mineral Spring, Lewiston, Androscoggin county.

Maryland.—1889.—Four springs reported, as against none for the preceding year. They are the following: Cecil Spring, Cowentown, Cecil county; Chattolance Mineral Spring, Chattolance, Baltimore county; Flintstone Mineral Springs, Flintstone, Allegany county; Strontia Mineral Spring, Brooklandville, Baltimore county.

1890.—Only two springs report. They are: Chattolance Mineral Spring, Chattolance, Baltimore county; Flintstone Mineral Springs, Flintstone, Allegany county.

Massachusetts.—1889.—Eight springs, an increase of two over 1888, reported sales for this year. The following are the ones reporting: Allendale Springs, West Roxbury, Suffolk county; Belmont Hill Spring, Everett, Middlesex county; Belmont Natural Spring, Everett, Middlesex county; Echo Grove Springs, West Lynn, Essex county; Everett Crystal Spring, Everett, Middlesex county; Sheep Rock Spring, Towell, Middlesex county; Simpson Spring, South Easton, Bristol county; Undine Spring, Brighton, Suffolk county.

1890.—One spring is added to the list, and eight springs in all report sales, as follows: Allendale Spring, West Roxbury, Suffolk county; Belmont Hill Spring, Everett, Middlesex county; Belmont Natural Spring, Belmont, Middlesex county; Everett Crystal Spring, Everett, Middlesex county; Sheep Rock Spring, Towell, Middlesex county; Simpson Spring, South Easton, Bristol county; Undine Spring, Brighton, Suffolk county; Commonwealth Mineral Spring, Waltham, Middlesex county.

Michigan.—1889.—Although but one spring reported sales in 1888

there were seven reporting in 1889. They are the following: Americanus Well, Lansing, Ingham county; Eastman Springs, Benton Harbor, Berrien county; Magnetic Mineral Springs, Spring Lake, Ottawa county; Mount Clemens Original Mineral Springs, Mount Clemens, Macomb county; Salutaris Mineral Spring, Saint Clair Springs, Saint Clair county; Ypsilanti Mineral Spring, Ypsilanti, Washtenaw county; Zauber Wasser Spring, Hudson, Lenawee county.

1890.—There is no change in the list for 1890, but one of the springs has sent no report. Those reporting are: Americanus Well, Lansing, Ingham county; Eastman Springs, Benton Harbor, Berrien county; Magnetic Mineral Springs, Spring Lake, Ottawa county; Mount Clemens Original Mineral Springs, Mount Clemens, Macomb county; Salutaris Mineral Spring, Saint Clair, St. Clair county; Zauber Wasser Spring, Hudson, Lenawee county.

Minnesota.—1889.—The only spring reporting for this State in 1889 and 1890 is Inglewood Springs, Hennepin county.

Mississippi.—1889.—Instead of three springs, as in 1888, only the following two report for 1889: Brown's Wells, Copiah county, S. J. Morehead, Brown's Wells post-office; Castilian Springs, near Durant, Holmes county. The same two wells report for 1890.

Missouri.—The six springs of 1888 have more than doubled in 1889, thirteen springs reporting, as follows: Artesian White Sulphur Well, Clinton, Henry county; B. B. Spring, Bowling Green, Pike county; Blue Lick Springs, Saline county; Eldorado Springs, Eldorado Springs, Cedar county; Electric Springs, Johnson county; Haupt's Mineral Spring, Milan, Sullivan county; Lebanon Magnetic Spring, Laclede county; Paris Springs, Paris Springs, Lawrence county; Randolph Springs, Randolph Springs, Randolph county; Reed Springs, Clay county; Reiger Mineral Springs, Mercer county; Sweet Springs, Sweet Springs, Saline county; Young's Medical Well, corner Twenty-fifth and Vine streets, Kansas City, Jackson county.

1890.—Three springs are taken from the list and seven springs have sent returns, viz. B. B. Spring, Bowling Green, Pike county; Blue Lick Spring, Saline county; Eldorado Springs, Eldorado Springs, Cedar county; Paris Springs, Paris Springs, Lawrence county; Randolph Springs, Randolph Springs, Randolph county; Reiger Springs, Mercer county; Young's Medical Well, Warrensburg, Jackson county.

Nebraska.—1889.—The Victoria Mineral Spring, Custer county, represents Nebraska for the first time on the list.

1890.—Nebraska is still represented on the list by the Victoria Mineral Spring, Custer county.

New Hampshire.—1889.—Two springs report, viz: Londonderry Lithia Spring, Nashua, Rockingham county, and Milford Springs, Amherst Station, Hillsboro county.

1890.—Three springs report sales, namely, Londonderry Lithia Springs, Londonderry, Rockingham county; Milford Springs, Amherst

Station, Hillsboro county; White Mountain Springs, Conway, Carroll county.

New Jersey.—1889.—New Jersey for the first time is put upon the list with one commercial water, viz: that from Kalium Springs, Collingswood, Camden county.

1890.—No reports have been received from New Jersey.

New Mexico.—1889.—Four springs make up New Mexico's list for 1889 instead of one, as in the previous year. The springs reporting are: Aztec Springs, Santa Fé, Santa Fé county; Baca Springs, Coyote district, Bernalillo county; Ojo Caliente Springs, Ojo Caliente, Taos county; Soda Springs, near Albuquerque, Bernalillo county.

1890.—The list remains the same as for 1889, and the following three are the only springs reporting: Aztec Springs, Santa Fé, Santa Fé county; Ojo Caliente Springs, Ojo Caliente, Taos county; Soda Springs, Coyote Cañon, Bernalillo county.

New York.—1889.—Twenty-one springs made reports as compared with seventeen in 1888. The springs reporting are: Crystal Springs, Barrington, Yates county; Deep Rock Springs, Oswego City, Oswego county; Empire Seneca Springs, Dunkirk, Chautauqua county; Geneva Magnetic Mineral Springs, Geneva, Ontario county; Massena Springs, Massena, St. Lawrence county; Oneida Springs, Utica, Oneida County; White Sulphur Springs, Sharon Springs, Schoharie county.

Saratoga Springs, Saratoga county: Champion Springs, Columbia Springs, Congress Springs, Empire Springs, Excelsior and Union Springs, Hathorn Springs, High Rock Springs, Imperial Spring, New Putnam Spring, Royal or New Putnam Spring, Patterson Spring, Saratoga Carlsbad Spring, Saratoga Magnetic and Peerless Springs, Saratoga Vichy Springs.

1890.—Nineteen of the twenty-six springs on the list for New York send returns; five of these are new to the list for 1890, and one of the springs of 1889 is taken from the list. The list reporting for 1890 is: Cayuga Springs, Cayuga, Cayuga county; Deep Rock Springs, Oswego, Oswego county; Miller's Geneva Mineral Spring, Geneva, Ontario county; Massena Springs, Massena, St. Lawrence county; White Sulphur Springs, Sharon Springs, Schoharie county; Artesian Lithia Springs, Ballston Spa, Saratoga county; White Sulphur Spring, Richfield Springs, Otsego county; Avon Spring, Avon, Livingston county; Oak Orchard Acid Springs, Alabama, Genesee county.

Saratoga Springs, Saratoga county: Empire Springs, Excelsior and Union Spring, Hathorn Springs, High Rock Spring, Imperial Spring, Royal or New Putnam Spring, Saratoga Carlsbad Spring, Saratoga Vichy Springs, Saratoga Kissingen Spring.

North Carolina.—1889.—The six springs on the list for 1888 have increased to the following eleven: All-Healing Spring, Alexander county; Ashley's Bromine and Arsenic Springs, Ashe county; Barium Springs, Barium Springs, Iredell county; Black Mountain Iron and Alum

Springs, Black Mountain, Buncombe county; Lemon Springs, Lemon Springs, Moore county; Lincoln Lithia Springs, Lincolnton, Lincoln county; Minnekahta Springs, Gaston county; Panacea Springs, near Littleton, Halifax county; Park's Alkaline Springs (near Danville, Va.), Caswell county; Seven Springs, Seven Springs, Wayne county; Shaw's Healing Springs, Littleton, Halifax county.

1890.—One new spring is added to the list and one is taken from it. Only the following six report, viz: Ashley's Bromine and Arsenic Springs, Bristol, Ashe county; Barium Springs, Barium, Iredell county; Lemon Springs, Lemon Springs, Moore county; Lincoln Lithia Springs, Lincolnton, Lincoln county; Park's Alkaline Springs, Caswell county (post-office Danville, Virginia); Thomson's Bromine Arsenic Spring, Crumpler, Ashe county.

Ohio.—1889.—The seven springs of 1888 have increased to eleven, from all of which reports have been received. They are: Adams County Mineral Spring, Mineral Springs, Adams county; Belbrook Magnetic Springs, Belbrook, Greene county; Crystal Mineral Spring, Urbana, Champaign county; Devonian Mineral Spring, Lorain, Lorain county; Electro-Magnetic Springs, Fountain Park, Champaign county; Lenape Spring, Delaware, Delaware county; Magnetic and Saline Spring, Marysville, Union county; Ohio Magnetic Springs, Magnetic Springs, Union county; Rex Mineral Water, New Richmond, Clermont county; Ripley Bromo-Lithia Spring, Ripley, Brown county; Sulphur Lick Spring, Frankford, Ross county.

1890.—One spring is taken from the list and one added, which leaves the total the same as for 1889. Only eight springs have reported, viz: Adams County Mineral Spring, Mineral Springs, Adams county; Crystal Mineral Spring, Urbana, Champaign county; Devonian Mineral Spring, Lorain, Lorain county; Electro-Magnetic Springs, Fountain Park, Champaign county; Rex Mineral Spring, New Richmond, Clermont county; Ripley Bromo-Lithia Spring, Ripley, Brown county; Sulphur Lick Spring, Anderson, Ross county; Magnetic and Saline Spring, Marysville, Union county.

Oregon.—1889.—The following report: Wagner Soda Spring, Ashland, Jackson county; Wilhoit Spring, Clackamas county.

1890.—No reports have been received from Oregon.

Pennsylvania.—1889.—The three springs of the list for 1888 have increased to twelve. They are: Allegheny Spring, Warren county; Bedford Springs, Bedford, Bedford county; Black Barren Mineral Spring, Pleasant Grove, Lancaster county; Corry Artesian Fountain, Corry, Erie county; Cresson Springs, Cresson, Cambria county; Eureka Mineral Springs, Saegerstown, Crawford county; Parker Magnetic Mineral Springs, Gardeau, McKean county; Pavilion Springs, Wernersville, Berks county; Pulaski Mineral Spring, Pulaski, Lawrence county; Roscommon Springs, Wind Gap, Monroe county; Sizerville Magnetic Mineral Spring, Sizerville, Cameron county; Susquehanna Spring and Kingsland Spring, Rush, Susquehanna county.

1890.—One spring is taken from the list and ten springs report sales. These springs are: Black Barren Mineral Spring, Pleasant Grove, Lancaster county; Corry Artesian Fountain, Corry, Erie county; Cresson Springs, Cresson, Cambria county; Eureka Mineral Springs, Saegertown, Crawford county; Parker Magnetic Mineral Spring, Gardean, McKean county; Pavilion Springs, Reading, Berks county; Pulaski Mineral Springs, Pulaski, Lawrence county; Rosecommon Springs, Wind Gap, Monroe county; Sizerville Magnetic Mineral Spring, Sizerville, Cameron county; Susquehanna Spring and King-land Spring, Rush, Susquehanna county.

Rhode Island.—1889.—Both springs on Rhode Island's list report sales. They are: Ochee Mineral and Medical Springs, Johnson, Providence county; Holly Springs, Woonsocket, Providence county.

1890.—Both localities report for this year, viz: Ochee Mineral and Medical Springs, Johnson, Providence county; Holly Springs, Woonsocket, Providence county.

South Carolina.—1889.—Two springs report sales, viz: Chick's Springs, Chicks Springs, Greenville county; Glen Springs, Glen Springs, Spartanburg county.

1890.—No reports have been received for 1890.

South Dakota.—1889.—South Dakota is represented for the first time on the list by Dakota Hot Springs, Fall River county, which reports also for 1890.

Tennessee.—1889.—Four springs, a decrease of two from 1888, report. They are: Estill Springs, Estill Springs, Franklin county; Idaho Springs, near Clarksville, Montgomery county; Red Boiling Springs, Red Boiling Springs, Macon county; Rhea Springs, Rhea Springs, Rhea county.

1890.—Only one of the springs on the list of 1889 has reported: Idaho Springs, Clarksville, Montgomery county; and one, new to the list, reports sales, viz: Tate Spring, Tate Spring, Grainger county.

Texas.—1889.—The number of springs reporting in 1889 is fourteen, just double the number for 1888. They are: Capp's Well, Longview, Gregg county; Dalby Springs, Texarkana, Bowie county; Elkhart Mineral Well, near Elkhart, Anderson county; Hynson's Iron Mountain Springs, Marshall, Harrison county; Mineral Wells Springs, Mineral Wells, Palo Pinto county; Montvale Springs, Marshall, Harrison county; Overall Mineral Well, Franklin, Robertson county; Page's Well, Georgetown, Williamson county; Richards's Wells, Rockdale, Milam county; Rosborough Springs, Marshall, Harrison county; Slack's Well, Fayette county; Texas Sour Springs, Luling, Caldwell county; Tioga Mineral Well, Tioga, Grayson county; Wooten Wells, Robertson county.

1890.—Thirteen springs report sales. They are: Capp's Well, Longview, Gregg county; Dalby Springs, Dalby Springs, Bowie county; Elkhart Mineral Well, Elkhart, Anderson county; Hynson's Iron Mountain Spring, Marshall, Harrison county; Mineral Well Springs,

Mineral Wells, Palo Pinto county; Montvale Springs, Marshall, Harrison county; Overall Mineral Well, Franklin, Robertson county; Richards' Wells, Rockdale, Milam county; Rosborough Springs, Marshall, Harrison county; Slack's Well, Fayette county (post-office, Walder Depot, Gonzales county); Texas Sour Springs, Luling, Caldwell county; Tioga Mineral Well, Tioga, Grayson county; Wooten Wells, Robertson county.

Vermont.—1889.—The list of springs decreased from six in 1888 to three, as follows: Alburg Sulphur and Lithia Springs, Alburg Springs, Grand Isle county; Brunswick White Sulphur Springs, Brunswick, Essex county; Clarendon Springs, Clarendon Springs, Rutland county.

1890.—One new spring is added to the list, making the total four for the State, all reporting, as follows: Alburg Sulphur and Lithia Springs, Alburg Springs, Grande Isle county; Brunswick White Sulphur Spring, Brunswick, Essex county; Clarendon Springs, Clarendon, Rutland county; Missisquoi Springs, Sheldon, Franklin county.

Virginia.—1889.—Twenty-one springs reported sales. The following is the list: Bear Lithia Springs, Elkton, Rockingham county; Blue Ridge Springs, Blue Ride Springs, Botetourt county; Buffalo Lithia Springs, Buffalo Lithia Springs, Mecklenburg county; Cove Lithia Water, Wytheville, Wythe county; Farmville Lithia Springs, Farmville, Prince Edward county; Hot Springs, Hot Springs, Bath county; Hunter's Pulaski Alum Springs, Walker's Creek, Pulaski county; Jordan White Sulphur Springs, Jordan Springs, Frederick county; Massanetta Springs, Massanetta Springs, Rockingham county; Osceola Springs, near Pleasant Valley, Rockingham county; Otterburn Lithia and Magnesia Springs, Amelia C. H., Amelia county; Paonian Spring, Loudoun county; Powhatan Lithia and Alum Spring, Powhatan, Powhatan county; Rawley Springs, Rawley Springs, Rockingham county; Roanoke Red Sulphur Springs, Roanoke county; Rockbridge Alum Springs, Alum Springs, Rockbridge county; Rockingham Springs, McGaheysville, Rockingham county; Seven Springs, 2 miles northwest of Glade Springs, Washington county; Stribling Springs, Stribling Springs, Augusta county; Virginia Arsenic Bromine and Lithia Springs, near Allegheny Springs, Montgomery county; Wallawhatoola Alum Springs, Millboro Springs, Bath county; Wolf Trap Lithia Springs, Wolf Trap Station, Halifax county.

1890.—By the addition of two new springs the list is increased to twenty-three, and the following twenty report: Blue Ridge Springs, Blue Ridge Springs, Botetourt county; Buffalo Lithia Springs, Buffalo Lithia Springs, Mecklenburg county; Cove Lithia Springs, Wytheville, Wythe county; Elk Lithia Spring, Elkton, Rockingham county; Farmville Lithia Springs, Farmville, Cumberland county; Hunter's Pulaski Alum Springs, Walker's Creek, Pulaski county; Jordan White Sulphur Springs, Stephenson, Frederick county; Massanetta Springs, near Harrisonburg, Rockingham county; Osceola Springs, Harrisonburg, Rockingham county; Otterburn Lithia and Magnesia Spring, Amelia C. H.,

Amelia county; Paonian Spring, Clarks Cap, Loudoun county; Roanoke Red Sulphur Springs, Catawba, Roanoke county; Rockbridge Alum Springs, Goshen, Rockbridge county; Rockingham Springs, McGaheysville, Rockingham county; Seven Springs, Abingdon, Washington county; Stribling Springs, Stribling Springs, Augusta county; Virginia Arsenic, Bromine, and Lithia Springs, Christiansburg, Montgomery county; Wallawhatoola Alum Springs, Richmond, Bath county; Wolf Trap Lithia Springs, Wolf Trap Station, Halifax county; Shenandoah Alum Springs, Mount Jackson, Shenandoah county.

Washington.—1889.—The State of Washington presents a list of three instead of one as in 1888. The springs reporting are: Cascade Springs, Skamania county; Medical Lake, Medical Lake, Spokane county; Yakima Soda Springs, North Yakima, Yakima county.

1890.—Two springs report as follows: Medical Lake, Medical Lake, Spokane county; Yakima Soda Springs, North Yakima, Yakima county.

West Virginia.—1889.—Four springs report for 1889, as follows: Capon Springs, Capon Springs, Hampshire county; Salt Sulphur Springs, Salt Sulphur Springs, Monroe county; Triplett Springs, Willow Island, Pleasant county; White Sulphur Springs, White Sulphur Springs, Greenbrier county.

1890.—Two springs are added to the list and the total number report. They are Red Sulphur Springs, Monroe county; Irondale Springs, Independence, Preston county; Triplett Springs, Willow Island, Pleasant county; White Sulphur Springs, White Sulphur Springs, Greenbrier county; Capon Springs, Capon Springs, Hampshire county; Salt Sulphur Springs, Salt Sulphur Springs, Monroe county.

Wisconsin.—1889.—Twenty springs report in this year as compared with the twelve in the list of 1888. The springs reported are: Allouez Magnesia Mineral Spring, Green Bay, Brown county; Ashland Mineral Spring, Ashland, Ashland county; Darlington Mineral Spring, Darlington, Lafayette county; Fort Crawford Spring, Prairie du Chien, Crawford county; Lebens Wasser Spring, Brown county; Salvator Mineral Spring, Brown county; Shealtiel Springs, Waupaca, Waupaca county; Sheboygan Springs, Sheboygan, Sheboygan county; Silver Sand Spring, Milwaukee county; Vita Mineral Spring, Beaver Dam, Dodge county; Nee-Ska-Ra Spring, Milwaukee, Milwaukee county.

Waukesha Springs, Waukesha county: The Alma Spring, Arcadian Mineral Spring, Bethesda Mineral Springs, Clysmic Springs, Henk Mineral Springs, Horeb Mineral Spring, Mineral Rock Spring, Waukesha Hygeia Mineral Spring, White Rock Mineral Spring.

1890.—Two springs are added to the list, and the name of the Alma Springs at Waukesha is changed to Almanaris. The following twelve springs report sales: Allouez Magnesia Mineral Spring, Green Bay, Brown county; Darlington Mineral Spring, Darlington, Lafayette county; Fort Crawford Spring, Prairie du Chien, Crawford county;

Lebens Wasser Spring, Green Bay, Brown county; Salvator Mineral Spring, Green Bay, Brown county; Shealtiel Mineral Spring, Farmington, Waupaca county; Sheboygan Springs, Sheboygan, Sheboygan county; Silver Sand Spring, Milwaukee, Milwaukee county; Nee-Ska-Ra Spring, Wauwatosa, Milwaukee county; Palmyra Springs, Palmyra, Jefferson county; Rainbow Mineral Spring, Wautoma, Waushara county; Vita Mineral Spring, Beaver Dam, Dodge county; Bethania Mineral Springs, Osceola Mills, Polk county.

Waukesha Springs, Waukesha county.—Almanaris Spring, Arcadian Spring, Bethesda Mineral Spring, Henk Mineral Spring; Hygeia Mineral Spring; Mineral Rock Spring, White Rock Mineral Spring.

Summary of reports of mineral springs for 1890.

	Springs re- porting.	Springs not reporting.	Total used commercially.		Springs re- porting.	Springs not reporting.	Total used commercially.
North Atlantic States:				North Central States:			
Maine	7	3	10	Ohio	8	1	11
New Hampshire	3	0	3	Indiana	8	0	8
Vermont	4	0	4	Illinois	7	2	9
Massachusetts	8	1	9	Michigan	6	1	7
Rhode Island	2	0	2	Wisconsin	20	3	23
Connecticut	2	1	3	Minnesota	1	0	1
New York	19	7	26	Iowa	5	1	6
New Jersey	0	1	1	Missouri	7	3	10
Pennsylvania	10	1	11	North Dakota	0	0	0
South Atlantic States:				South Dakota	1	0	1
Delaware	0	0	0	Nebraska	1	0	1
Maryland	2	2	4	Kansas	7	1	8
District of Columbia	0	0	0	Western States and Terri- tories:			
Virginia	20	3	23	Alaska	0	0	0
West Virginia	6	0	6	Wyoming	0	0	0
North Carolina	6	5	11	Montana	0	0	0
South Carolina	0	2	2	Colorado	7	1	8
Georgia	4	0	4	New Mexico	3	1	4
Florida	1	0	1	Arizona	0	0	0
South Central States:				Utah	0	0	0
Kentucky	5	0	5	Nevada	0	0	0
Tennessee	2	3	5	Idaho	1	0	1
Alabama	3	2	5	Washington	2	1	3
Mississippi	2	0	2	Oregon	0	2	2
Louisiana	0	0	0	California	12	2	14
Texas	13	1	14				
Indian Territory	0	0	0	Total	220	53	273
Oklahoma	0	0	0				
Arkansas	5	0	5				

